II. Remarks

Support for the various amendments made to the claims herein may be found throughout the application as filed. Claims 1-14 remain pending in the present applications, claims 15-19 having been cancelled herein.

III. Rejections of Claims Made in the First Office Action

In the communication from the Examiner mailed July 3, 2006, the Examiner rejected claims on the following bases:

(1) Claim 1 was rejected under 35 U.S.C. Section 102(b) as being anticipated by Japanese Patent Publication No. 2002232017 to Kyocera;

(2) Claims 2, 8 and 14 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al.;

(3) Claim 3 was rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 4,600,977 to Barlian et al.;

(4) Claims 4 and 5 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 6,186,649 to Zou et al.;

(5) Claim 6 was rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 1,340,443 to Gleason;

(6) Claim 7 was rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 6,715,901 to Huang;

(7) Claims 9 and 15 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to

Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. and further in view of U.S. Patent No. 4,600,977 to Barlian et al.;

(8) Claims 10, 11, 16 and 17 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. and further in view of U.S. Patent No. 6,186,649 to Zou et al.;

(9) Claims 12 and 18 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. and further in view of U.S. Patent No. 1,340,443 to Gleason, and

(10) Claims 13 and 19 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Japanese Patent Publication No. 2002232017 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. and further in view of U.S. Patent No. 6,715,901 to Huang.

Each of the foregoing rejections is responded to below, where each response references the number corresponding to each rejection set forth above.

IV. Responses to Objections and Rejections Made in the First Office Action

(1) Claim 1 as amended herein is not anticipated by Japanese Patent Publication No. 2002232017 to Kyocera.

In rejecting claim 1 as being anticipated by Kyocera, the Examiner stated:

> Regarding claim 1, Kyocera discloses a standalone ceramic cavity (Fig. 4) comprising a ceramic substrate for mounting a light emitting diode (Fig. 4, bottom portion under LED) in a single cavity (Fig. 4) and *substantially* vertical ceramic sidewalls for minimizing light leakage (Fig. 4, reference number 33), and a metallic coating (reference numbers 32 and 34) on a portion of the ceramic substrate (Fig. 4) and a portion of the ceramic sidewalls for reflecting light in a predetermined direction (Fig. 4).

Figures 2D and 4 from the present application are reproduced hereinbelow:

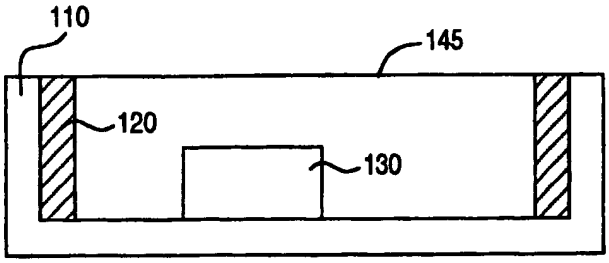


Figure 2D

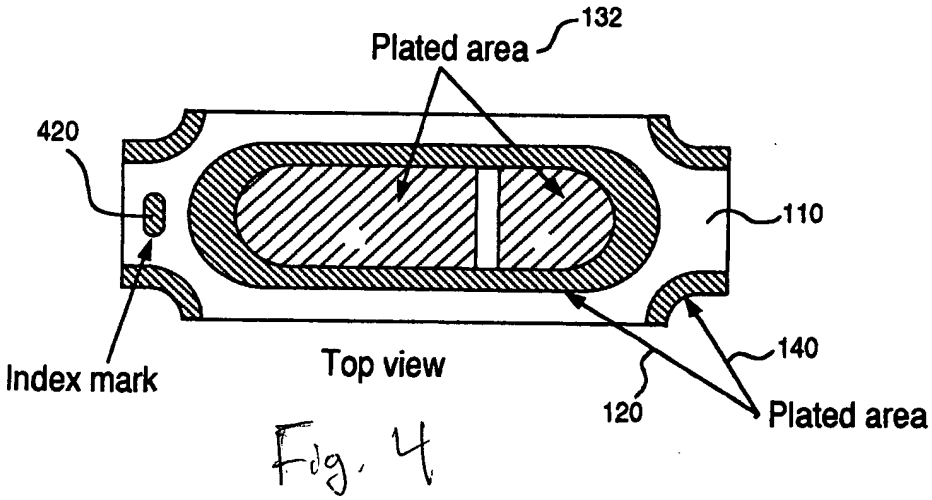
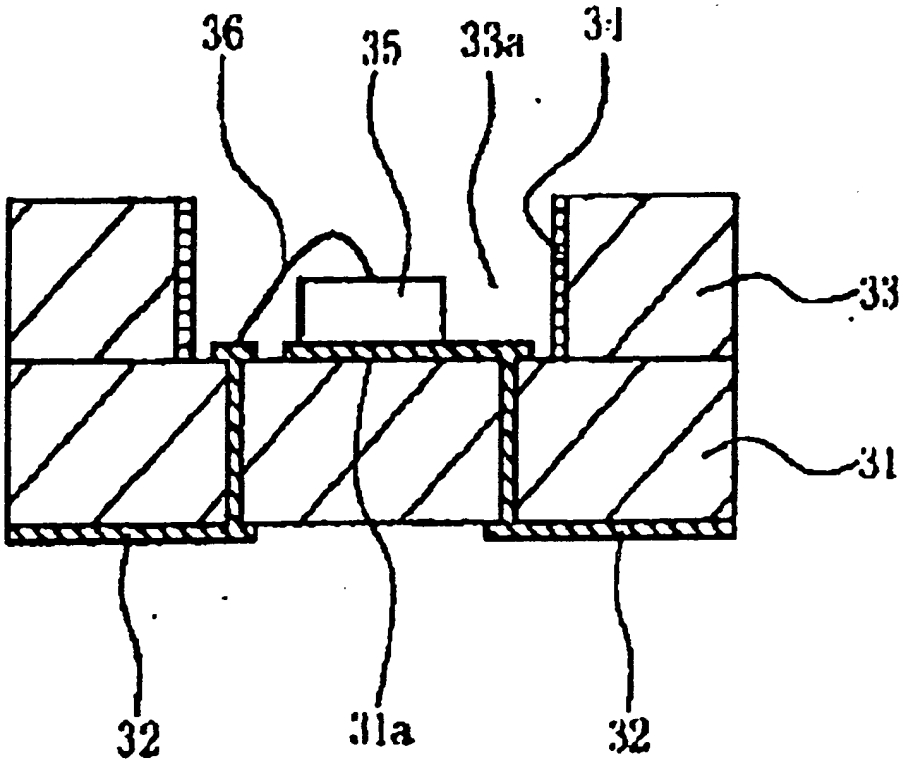


Fig. 4

Fig. 2D set forth above shows optically transparent material 145 disposed in the cavity in which light emitting diode 130 is located. Fig. 4 set forth above shows plated area 120 disposed on portions of substrate 110 for reflecting light from an LED in a predetermined direction.

Figure 4 from the Kyocera reference is reproduced hereinbelow:

【図4】



Reference to Fig. 4 set forth above from the Kyocera reference shows that no light-reflective coating is disposed over the bottom surface of cavity 33a. Instead, Kyocera's Fig. 4 shows electrically conductive strip 31a disposed at the bottom of cavity 33a and connected to LED 35. Vias and electrical conductors 32 route electrical power to LED 35 through substrate 31 and clearly serve no light-reflecting function whatsoever. Moreover, no optically transparent material is disposed in cavity 33a of Kyocera.

The Examiner rejected claim 1 as being anticipated by the Kyocera reference. A rejection based on anticipation under 35 U.S.C. §102 requires that all elements recited in the rejected claim be found within the four corners of the cited reference.

Claim 1 as amended herein requires a standalone light emitting diode package that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls and the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

As discussed above, for the cited Kyocera reference to anticipate claim 1, each and every limitation set forth in that claim must appear within the four corners of the Kyocera reference. Among other elements and limitations, the Kyocera reference does not disclose, hint at or suggest a light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, or an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, and the optically transparent material protects the

light emitting diode. Thus, it will now be seen that the Examiner's rejection of claim 1 as being anticipated by the Kyocera reference is overcome by the amendments made herein, and that claim 1 includes several elements and limitations disclosed nowhere, and suggested nowhere, in the cited Kyocera reference.

(2) Claims 2, 8 and 14 as amended herein are not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al.

In rejecting claims 2, 8 and 14 as being obvious over Kyocera in view of Kosman, the Examiner stated:

> Regarding claim 2, Kyocera does not disclose a cavity filled with an optically transparent material. Kosman et al. discloses a cavity filled with an optically transparent material (reference number 4, Fig. 1).
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optically transparent material of Kosman et al. in the cavity of Kyocera to protect the LEDs while allowing light to transmit through the material. See Fig. 1 of Kosman et al.
>
> Regarding claim 8, Kyocera discloses the steps of forming a single ceramic cavity (Fig. 4) comprising a substrate for mounting a light emitting diode (bottom support of Fig. 4) in a single cavity (Fig. 4) and substantially vertical ceramic sidewalls for reducing light leakage (reference number 33, Fig. 4), coating a portion of the ceramic cavity with a light reflective material (reference number 34, Fig. 4), and positioning a light emitting diode on the substrate (Fig. 4, reference number 35). Kyocera does not disclose the step of depositing an optically transparent material in the cavity to protect the light emitting diode.
>
> Kosman et al. discloses the step of depositing an optically transparent material (reference number 4) in the cavity to protect the light emitting diode (Fig. 1).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optically transparent material of Kosman et al. in the process of Kyocera to protect the

light emitting diode while letting light pass through. See Fig. 1 of Kosman et al.

Concerning claim 14, Kyocera discloses a single ceramic cavity (Fig. 4) comprising a ceramic substrate (bottom middle of Fig. 4) for mounting a light emitting diode (reference number 35) in the single cavity (Fig. 4) and *substantially* vertical ceramic sidewalls for reducing light leakage (Fig. 4), a metallic coating on a portion of the ceramic substrate (Fig. 4, reference number 34) for reflecting light in a predetermined direction (Fig. 4), a light emitting diode coupled to the substrate (reference number 35, Fig. 4). Kyocera does not disclose an optically transparent coating. Kosman et al. discloses an optically transparent coating (reference number 4) for protecting the light emitting diode (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optically transparent material of Kosman et al. in the cavity of Kyocera to protect the LEDs while allowing light to transmit through the material. See Fig. 1 of Kosman et al.

Reference to claims 2, 8 and 14 as amended herein will show that those claims contain limitations disclosed nowhere in the cited Kyocera and Kosman references.

Claim 2 depends from claim 1 as amended herein, and thus includes all limitations and elements now recited in claim 1. Claim 8 as amended herein includes most of the structural limitations recited in claim 1 as amended herein, and includes all the structural limitations set forth in the immediately preceding paragraph. Claim 14 depends from claim 8, and thus includes all limitations and elements set forth therein.

Nowhere do the Kyocera and Kosman references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when

the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 2, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optically transparent material of Kosman et al. in the cavity of Kyocera to protect the LEDs while allowing light to transmit through the material." In respect of claim 8, the Examiner stated "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optically transparent material of Kosman et al. in the process of Kyocera to protect the light emitting diode while letting light pass through." In respect of claim 14, the Examiner stated "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optically transparent material of Kosman et al. in the cavity of Kyocera to protect the LEDs while allowing light to transmit through the material." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusions.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the cavity of Kyocera and the optically transparent material of Kosman, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera or Kosman references to produce the invention now recited in claims 2, 8 and 14 as amended herein. The mere fact that the cited Kyocera and Kosman references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera and Kosman references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

Kosman discloses nothing regarding the protection of an LED with an optically transparent material; the Kosman reference is basically directed to various means of forming lenses from optically transparent materials so as to broaden the beam emitted by an LED.

There is no suggestion of what direction any experimentation should follow in the Kosman and Kyocera references cited by the Examiner to obtain the invention now recited in claims 2, 8 and 14. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not

known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera and Kosman references and somehow arrive at the invention now recited in claims 2, 8 and 14 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera and Kosman references to arrive at the invention now recited in claims 2, 8 and 14. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera and Kosman references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claims 2, 8 and 14 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera and Kosman references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claims 2, 8 and 14 are present in the Kyocera and Kosman references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect each of claims 2, 8 and 14, excise the various individual elements recited in each claim, and then declare the remaining portions of the mutilated claims to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a

whole. Accordingly, the Kyocera and Kosman references may not properly be used as a basis for rejecting any of claims 2, 8 and 14 as amended herein under §103.

(3) Claim 3 as amended herein is not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 4,600,977 to Barlian et al.

In rejecting claim 3 as being obvious over Kyocera in view of Barlian, the Examiner stated:

> Regarding claim 3, Kyocera does not disclose a white cavity being used as a reflective cavity. Barlian et al. discloses that one can use a cavity that is substantially white in color (column 6, lines 23-25) or one with a metallic coating for reflecting the light (column 6, lines 25-30).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to choose the white reflective coating of Barlian over the metallic coating of Barlian or Kyocera for the apparatus of Kyocera depending on the desired illumination effects.

Reference to claim 3 as amended herein will show that this claim contains limitations disclosed nowhere in the cited Kyocera and Kosman references. Claim 3 depends from claim 1 as amended herein, and thus includes all limitations and elements now recited in claim 1.

Nowhere do the Kyocera and Barlian references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon

in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 3, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to choose the white reflective coating of Barlian over the metallic coating of Barlian and Kyocera for the apparatus of Kyocera depending on the desired illumination effects." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the white reflective coating of Barlian and the metallic coatings of Barlian and Kyocera, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera and Barlian references to produce the invention now recited in claim 3 as amended herein. The mere fact that the cited Kyocera and Barlian references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera and Barlian references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Barlian and Kyocera references cited by the Examiner to obtain the invention now recited in claim 3. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera and Barlian references and somehow arrive at the invention now recited in claim 3 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera and Barlian references to arrive at the invention now recited in claim 3. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera and Barlian references do not teach the problems

associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim 3 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera and Barlian references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claim 3 are present in the Kyocera and Barlian references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claim 3, excise the various individual elements recited in that claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera and Barlian references may not properly be used as a basis for rejecting claim 3 as amended herein under §103.

(4) Claims 4 and 5 as amended herein are not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 6,186,649 to Zou et al.

In rejecting claims 4 and 5 as being obvious over Kyocera in view of Zou et al., the Examiner stated:

> Concerning claim 4, Huang does not disclose using silver as a reflective coating. Zou et al. discloses the metallic coating comprising silver (column 6, lines 10-15).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver coating of Zou et al. in place of the reflective coating of Kyocera to achieve a reflectivity of 80% to 93%. See column 6, lines 6-7, of Zou et al.
>
> Regarding claim 5, Huang does not disclose using gold as a reflective coating. Zou et al. discloses the metallic coating comprising gold (column 6, lines 10-15).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gold coating of Zou et al. in place of the reflective coating of Kyocera to achieve a reflectivity of 80% to 93%. See column 6, lines 6-7, of Zou et al.

Reference to claims 4 and 5 as amended herein will show that those claims contain limitations disclosed nowhere in the cited Kyocera and Zou references. Claims 4 and 5 depend from claim 1 as amended herein, and thus includes all limitations and elements now recited in claim 1.

Nowhere do the Kyocera and Zou references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 4, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver coating of Zou et al. in place of the reflective coating of Kyocera to achieve a reflectivity of 80% to 93%." In the First Office Action, and in respect of claim 5, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was

made to use the gold coating of Zou et al. in place of the reflective coating of Kyocera to achieve a reflectivity of 80% to 93%." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the gold or silver reflective coatings of Zou and the metallic coatings of Kyocera, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera and Zou references to produce the invention now recited in claims 4 and 5 as amended herein. The mere fact that the cited Kyocera and Zou references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera and Zou references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident

thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Zou and Kyocera references cited by the Examiner to obtain the invention now recited in claims 4 and 5. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera and Zou references and somehow arrive at the invention now recited in claims 4 and 5 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera and Zou references to arrive at the invention now recited in claims 4 and 5. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera and Zou references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus,

an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claims 4 and 5 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera and Zou references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claims 4 and 5 are present in the Kyocera and Zou references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claims 4 and 5, excise the various individual elements recited in each claim, and then declare the remaining portions of the mutilated claims to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera and Zou references may not properly be used as a basis for rejecting claims 4 and 5 as amended herein under §103.

(5) Claim 6 as amended herein is not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 1,340,443 to Gleason.

In rejecting claim 6 as being obvious over Kyocera in view of Gleason, the Examiner stated:

> Regarding claim 6, Kyocera does not disclose the metallic coating being formed by plating. Gleason discloses the metallic coating being formed by plating (page 1, lines 110-112).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the plating process of Gleason in the apparatus of Kyocera to enhance the quality of the reflective surface. See page 1, line 110, to page 2, line 1, of Gleason.

Reference to claim 6 as amended herein will show that this claim contains limitations disclosed nowhere in the cited Kyocera and Gleason references. Claim 6 depends from claim 1 as amended herein, and thus includes all limitations and elements now recited in claim 1.

Nowhere do the Kyocera and Gleason references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 6, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the plating process of Gleason in the apparatus of Kyocera to enhance the quality of the reflective surface." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the plating process of Gleason and the apparatus of Kyocera, while essentially creating other features out of whole

cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera and Gleason references to produce the invention now recited in claim 6 as amended herein. The mere fact that the cited Kyocera and Gleason references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera and Gleason references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Gleason and Kyocera references cited by the Examiner to obtain the invention now recited in claim 6. Accordingly, the result effective variables,

for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera and Gleason references and somehow arrive at the invention now recited in claim 6 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera and Gleason references to arrive at the invention now recited in claim 6. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera and Gleason references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim 6 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera and Gleason references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claim 6 are present in the Kyocera and Gleason references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the

Examiner cannot in turn dissect claim 6, excise the various individual elements recited in that claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera and Gleason references may not properly be used as a basis for rejecting claim 6 as amended herein under §103.

(6) Claim 7 as amended herein is not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 6,715,901 to Huang.

In rejecting claim 7 as being obvious over Kyocera in view of Huang, the Examiner stated:

> Concerning claim 7, Kyocera does not disclose the cavity being formed to contain a plurality of light emitting diodes. Huang discloses the ceramic cavity being formed to contain a plurality of light emitting diodes (column 4, lines 62-67).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Huang in the apparatus of Kyocera to enable the apparatus to accommodate more LEDs to increase light output per apparatus.

Reference to claim 7 as amended herein will show that this claim contains limitations disclosed nowhere in the cited Kyocera and Huang references. Claim 7 depends from claim 1 as amended herein, and thus includes all limitations and elements now recited in claim 1.

Nowhere do the Kyocera and Huang references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate,

and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 7, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Huang in the apparatus of Kyocera to enable the apparatus to accommodate more LEDs to increase light output per apparatus." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the multiple LEDs of Huang and the apparatus of Kyocera, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera and Huang references to produce the invention now recited in claim 7 as amended herein. The mere fact that the cited Kyocera and Huang references could, with the

benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera and Huang references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Kyocera and Huang references cited by the Examiner to obtain the invention now recited in claim 7. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera and Huang references and somehow arrive at the invention now recited in claim 7 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera and Huang references to arrive at the invention now recited in claim 7. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera and Huang references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim 7 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera and Huang references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claim 7 are present in the Kyocera and Huang references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claim 7, excise the various individual elements recited in that claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera and Huang references may not properly be used as a basis for rejecting claim 7 as amended herein under §103.

(7) Claim 9 as amended herein is not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. or U.S. Patent No. 4,600,977 to Barlian et al.

Claim 15 is cancelled herein, rendering moot the rejection of such claim.

In rejecting claim 9 as being obvious over Kyocera in view of Kosman and Barlian, the Examiner stated:

> Regarding claim 9, Kyocera does not disclose a cavity that is substantially white in color for reflective purposes. Barlian et al. discloses a cavity that is substantially white in color (column 6, lines 23-25) or a cavity that has a metallic coating (column 6, lines 25-30).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to choose the white cavity of Barlian et al. over the metallic coating of Barlian et al. or Kyocera in the apparatus of Kyocera depending on the desired illumination effects.

Reference to claim 9 as amended herein will show that this claim contains limitations disclosed nowhere in the cited Kyocera, Kosman or Barlian references. Claim 9 depends from claim 8 as amended herein, and thus includes all limitations and elements now recited in claim 8.

Nowhere do the Kyocera, Kosman or Barlian references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light

incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 9, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to choose the white cavity of Barlian et al. over the metallic coating of Barlian et al. or Kyocera in the apparatus of Kyocera depending on the desired illumination effects." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the white cavity of Barlian, the metallic coating of Barlian or Kosman, and the apparatus of Kyocera, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera, Barlian or Kosman references to produce the invention now recited in claim 9 as amended herein. The mere fact that the cited Kyocera, Barlian or Kosman references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or

suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera, Barlian and Kosman references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Kyocera, Barlian or Kosman references cited by the Examiner to obtain the invention now recited in claim 9. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera, Barlian and Kosman references and somehow arrive at the invention now recited in claim 9 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera, Barlian and Kosman references to

arrive at the invention now recited in claim 9. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera, Barlian and Kosman references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim 9 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera, Barlian and Kosman references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claim 9 are present in the Kyocera, Barlian and Kosman references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claim 9, excise the various individual elements recited in that claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera, Barlian and Kosman references may not properly be used as a basis for rejecting claim 9 as amended herein under §103.

(8) Claims 10 and 11 as amended herein are not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. or U.S. Patent No. 6,186,649 to Zou et al.

Claims 16 and 17 are cancelled herein, rendering moot the rejections of such claims.

In rejecting claims 10 and 11 as being obvious over Kyocera in view of Kosman and Zou, the Examiner stated:

> Regarding claim 10, Kyocera and Kosman et al. do not disclose the reflective coating comprising silver. Zou et al. discloses the light reflective material comprising silver (column 6, lines 10-15).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver coating of Zou et al. in place of the reflective coating of Kyocera and Kosman et al. to achieve a reflectivity of 80% to 93%. See column 6, lines 6-7, of Zou et al.
>
> Concerning claim 11, Kyocera and Kosman et al. do not disclose the reflective coating comprising gold. Zou et al. discloses the reflective material comprising gold (column 6, lines 10-15).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gold coating of Zou et al. in place of the reflective coating of Kyocera and Kosman et al. to achieve a reflectivity of 80% to 93%. See column 6, lines 6-7, of Zou et al

Reference to claims 10 and 11 as amended herein will show that these claims contains limitations disclosed nowhere in the cited Kyocera, Kosman or Zou references. Claims 10 and 11 depend from claim 8 as amended herein, and thus include all limitations and elements now recited in claim 8.

Nowhere do the Kyocera, Kosman or Zou references, either alone or in combination, disclose a standalone light emitting diode package, or a

corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 10, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver coating of Zou et al. in place of the reflective coating of Kyocera and Kosman et al. to achieve a reflectivity of 80% to 93%." In respect of claim 11, the Examiner stated "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gold coating of Zou et al. in place of the reflective coating of Kyocera and Kosman et al. to achieve a reflectivity of 80% to 93%." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusions.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the silver coating of Zou and the reflective coatings of Kyocera and Kosman, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior

art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera, Kosman or Zou references to produce the invention now recited in claims 10 and 11 as amended herein. The mere fact that the cited Kyocera, Kosman and Zou references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera, Kosman and Zou references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Kyocera, Kosman or Zou references cited by the Examiner to obtain the invention now recited in claims 10 and 11. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and

substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera, Kosman and Zou references and somehow arrive at the invention now recited in claims 10 and 11 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera, Kosman and Zou references to arrive at the invention now recited in claims 10 and 11. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera, Kosman and Zou references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claims 10 and 11 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera, Kosman and Zou references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claims 10 and 11 are present in the Kyocera, Kosman and Zou references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claims 10 and 11, excise the various

individual elements recited in each claim, and then declare the remaining portions of the mutilated claims to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera, Kosman and Zou references may not properly be used as a basis for rejecting claims 10 and 11 as amended herein under §103.

(9) Claim 12 as amended herein is not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. or U.S. Patent No. 1,340,443 to Gleason.

Claim 18 is cancelled herein, rendering moot the rejection of such claim.

In rejecting claim 12 as being obvious over Kyocera in view of Kosman and Gleason, the Examiner stated:

> Regarding claim 12, Kyocera and Kosman et al. do not disclose the reflective coating being formed by plating. Gleason discloses the reflective coating being formed by plating (page 1, lines 110-112).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the plating process of Gleason in the process of Kyocera and Kosman et al. to enhance the quality of the reflective surface. See page 1, line 110, to page 2, line 1, of Gleason.

Reference to claim 12 as amended herein will show that this claim contains limitations disclosed nowhere in the cited Kyocera, Kosman or Gleason references. Claim 12 depends from claim 8 as amended herein, and thus includes all limitations and elements now recited in claim 8.

Nowhere do the Kyocera, Kosman or Gleason references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at

least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 12, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the plating process of Gleason in the process of Kyocera and Kosman et al. to enhance the quality of the reflective surface. No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the plating process of Gleason and the processes of Kyocera and Kosman, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera, Kosman or Gleason references to produce the invention now recited in claim 12 as

amended herein. The mere fact that the cited Kyocera, Kosman or Gleason references could, with the benefit of hindsight, produce something vaguely similar to the present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera, Kosman or Gleason references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Kyocera, Kosman or Gleason references cited by the Examiner to obtain the invention now recited in claim 12. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera, Kosman and Gleason Zou

references and somehow arrive at the invention now recited in claim 12 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera, Kosman and Zou references to arrive at the invention now recited in claim 12. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera, Kosman and Gleason references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim 12 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera, Kosman and Gleason references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claim 12 are present in the Kyocera, Kosman and Gleason references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claim 12, excise the various individual elements recited in that claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole.

Accordingly, the Kyocera, Kosman and Gleason references may not properly be used as a basis for rejecting claim 12 as amended herein under §103.

(10) Claim 13 as amended herein is not unpatentable over Japanese Patent Publication No. 2002232018 to Kyocera in view of U.S. Patent No. 3,821,590 to Kosman et al. or U.S. Patent No. 6,715,901 to Huang.

Claim 19 is cancelled herein, rendering moot the rejection of such claim.

In rejecting claim 13 as being obvious over Kyocera in view of Kosman and Huang, the Examiner stated:

> Concerning claim 13, Kyocera and Kosman et al. do not disclose the ceramic cavity being formed to mount a plurality of light emitting diodes. Huang discloses the ceramic cavity being formed to mount a plurality of light emitting diodes (column 4, lines 62-67).
>
> It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Huang in the apparatus of Kyocera and Kosman to enable the apparatus to contain more LEDs to produce a greater light output.

Reference to claim 13 as amended herein will show that this claim contains limitations disclosed nowhere in the cited Kyocera, Kosman or Huang references. Claim 13 depends from claim 8 as amended herein, and thus includes all limitations and elements now recited in claim 8.

Nowhere do the Kyocera, Kosman and Huang references, either alone or in combination, disclose a standalone light emitting diode package, or a corresponding method of making same, that includes, among other elements, at least one light-reflective metallic coating disposed over at least portions of the sidewalls *and* the substrate, a light emitting diode mounted on or in the substrate, and an optically transparent material disposed in the cavity and covering the light emitting diode, wherein the ceramic composition of the sidewalls and the substrate

and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized, the metallic coating reflects light incident thereon in a predetermined direction, and the optically transparent material protects the light emitting diode.

In the First Office Action, and in respect of claim 13, the Examiner asserted that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Huang in the apparatus of Kyocera and Kosman to enable the apparatus to contain more LEDs to produce a greater light output." No support was given by the Examiner to establish a motive for combining the cited references or arriving at the foregoing conclusion.

The Applicants have discovered that a certain novel combination of optical, structural and electronic elements combined in a certain order and arranged in a certain manner are required to produce the beneficial effects of the present invention. Those elements and arrangements are neither disclosed nor suggested anywhere in the cited references, and accordingly cannot be *prima facie* obvious.

Merely asserting as the Examiner does above that "it is obvious to try" the invention by making reference to the lighting configuration of Huang and the apparatus of Kyocera and Kosman, while essentially creating other features out of whole cloth without referring to any specific portions of the cited references, does not establish a *prima facie* case of obviousness. In going from the prior art to the claimed invention, one cannot base obviousness on what a person skilled in the art might try or find obvious to *try*, but rather must consider what the prior art would have lead a person skilled in the art to *do*.

There is no incentive, teaching or suggestion in the Kyocera, Kosman or Huang references to produce the invention now recited in claim 13 as amended herein. The mere fact that the cited Kyocera, Kosman and Huang references could, with the benefit of hindsight, produce something vaguely similar to the

present invention does not make the modification obvious, or suggest the desirability of the modification required to arrive at the present invention.

In such a context, it is noteworthy that the cited Kyocera, Kosman and Huang references disclose nothing concerning some of the problems solved by the present invention, such as:

(i) placing a light-reflective coating on the sidewalls *and* the bottom of the cavity to reflect light emitted by the light emitting diode incident thereon in a predetermined direction, thereby increasing the efficiency of the package;

(ii) configuring the ceramic composition of the sidewalls and the substrate and the light-reflective coating to minimize light leakage through or into the housing when the light emitting diode is energized;

(iii) protecting a light emitting diode with an optically transparent material.

There is no suggestion of what direction any experimentation should follow in the Kyocera, Kosman and Huang references cited by the Examiner to obtain the invention now recited in claim 13. Accordingly, the result effective variables, for example coating at least portions of the sidewall and substrate with a light-reflective coating, configuring the ceramic sidewalls and substrate, and covering the light emitting diode with an optically transparent material, are not known to be result effective. Thousands or millions of attempts at variations might be made before arriving at the desired improvement. Thus, to say that it would be obvious to read the Kyocera, Kosman and Huang references and somehow arrive at the invention now recited in claim 13 would clearly not be the test for obviousness.

The foregoing analysis also makes it clear that there is no basis in the art for combining or modifying the Kyocera, Kosman and Huang references to

arrive at the invention now recited in claim 13. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. As pointed out above, the Kyocera, Kosman and Huang references do not teach the problems associated with, or the sources of such problems, respecting the use of standalone, discrete, high-efficiency, ceramic LED lighting packages. When, as here, the prior art itself provides no apparent reason for one of ordinary skill in the art to make a modification or to combine references, an argument clearly does not exist that the claimed subject matter would have been obvious. Thus, an attempt to use the applicants' own disclosure as a blueprint to reconstruct in hindsight the invention now recited in claim 13 as amended herein out of isolated teachings appearing in the prior art would clearly be improper.

The results and advantages produced by the invention set forth in the claims as amended herein and of which the cited Kyocera, Kosman and Huang references are devoid, cannot be ignored simply because the claim limitations might be deemed similar to the otherwise barren prior art.

Finally, the foregoing analysis also makes it clear that not all limitations appearing in claim 13 are present in the Kyocera, Kosman and Huang references, either alone or in combination. When evaluating a claim for determining obviousness, *all* limitations of the claim must be evaluated. Under §103, the Examiner cannot in turn dissect claim 13, excise the various individual elements recited in that claim, and then declare the remaining portions of the mutilated claim to be unpatentable. The Examiner must follow the basic rule of claim interpretation of reading the claims as a whole. Accordingly, the Kyocera, Kosman and Huang references may not properly be used as a basis for rejecting claim 13 as amended herein under §103.

V. Summary

Claims 1 through 14 remain pending in the application, and are believed to be in condition for allowance. Examination of the application as amended is requested. The Examiner is respectfully requested to contact the undersigned by telephone or e-mail with any questions or comments she may have.

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